



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,290	12/20/2005	Richard P. Merry	58641US004	1655
32692	7590	09/04/2008		
3M INNOVATIVE PROPERTIES COMPANY				
PO BOX 33427				
ST. PAUL, MN 55133-3427				
EXAMINER				
NELSON, MICHAEL B				
ART UNIT		PAPER NUMBER		
1794				
NOTIFICATION DATE		DELIVERY MODE		
09/04/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com

LegalDocketing@mmm.com

Office Action Summary

Application No.

10/561,290

Applicant(s)

MERRY, RICHARD P.

Examiner

MICHAEL B. NELSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISD)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date 04/24/06

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 22-30 and 35-40 recite limitations that claims depend on cancelled claim 1. For the purposes of advancing prosecution, the claims will be assumed to depend on claim 20.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 21-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ten Eyck (U.S. 4,999,168) in view of Rogers et al. (U.S. 5,290,522).

Regarding claim 1, Ten Eyck discloses a pollution control element (Fig. 1) with a three layer intumescent mounting sheet, (26, 22, 24) around an exhaust monolith (i.e. exposed to the atmosphere, C1, L1-10). The first layer, adjacent to the monolith, 26, is a non-intumescent,

ceramic fiber layer designed to protect the adjacent intumescent layer, 22, from the high heats generated by the monolith (C5, L1-20). The third layer, 24, is a non-intumescent reinforcing layer of inter alia, inorganic fibers, which lies between the intumescent layer, 22, and the outer mounting device, 10, and thereby provides a degree of thermal protection from the relatively lower ambient temperature (C4, L60-68 and C5, L49-65). The intumescent layer, 24, has a thickness of 0.2 inches and density of 70 pcf (i.e. 5696.2 g/m², C5, L10-20). Ten Eyck does not disclose the surface density of the non-intumescent layer.

Rogers et al. discloses a non-intumescent inorganic fiber mat with beneficial cushioning and thermal protection properties for use with monolith exhaust systems (Fig. 1, C2, L35-51). The mounting mat of Rogers et al. is disclosed as solving the problem of inadequate surface density in fibrous mats through needlepunching to achieve surface densities of greater than 2000 g/m² (C2, L50-68 and C6, L 27-32).

The inventions of both Ten Eyck and Rogers et al. are drawn to the field of catalytic monolith mounting mats and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the three layer mat of Ten Eyck by using the inorganic fiber mat material of Rogers et al. as the non-intumescent layer material for the purposes of imparting enhanced thermal holding properties (Rogers et al. C2, L35-51).

Regarding claims 22-39, modified Ten Eyck discloses all of the limitations as set forth above. Additionally, Rogers et al. discloses that the fibrous mat has shot-free, inorganic, ceramic fibers (C1, L60-68) with needlepunching resulting in high surface density (i.e. greater than 2000 g/m², C2, L60-65). Ten Eyck discloses that the surface density of the intumescent layer is

greater than 2000 g/m^2 (i.e. 5696.2 g/m^2 , 0.2 inches thick with a density of 70 pcf, C5, L10-20) and the overall thickness of the mat is between 3 and 30 mm (C6, L30-68).

Regarding the relative thicknesses of the intumescent and non-intumescent layers, one having ordinary skill in the art would have adjusted, through routine experimentation, the relative thicknesses of the layers in the mounting mat, in order to optimize the mounting strength, thermal conduction properties, cost of manufacturing and thermal holding properties. Given the surface density properties of the materials disclosed for use in the layers, and after optimizing the relative thicknesses, the overall density of the three layer laminate would be within the claimed range.

6. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ten Eyck (U.S. 4,999,168) in view of Rogers et al. (U.S. 5,290,522), and further in view of applicant's admission of prior art.

Regarding claim 40, modified Ten Eyck discloses all of the limitations as set forth above. Modified Ten Eyck does not disclose the particular properties of the catalytic monolith used. In applicant's specification, Page 1 L20-30, it is disclosed that monoliths with walls of 6 mils and cell densities of 400 were known to those having skill in the art at the time of the invention. It would have been obvious to one having ordinary skill in the art to have used the mounting sheet of modified Ten Eyck for all applicable exhaust mounting systems and for all monoliths in order to maximize the commercial applicability of the invention. The improved thermal holding characteristics of the mounting sheet of modified Ten Eyck would make it particularly applicable

to the thin walled and increasingly fragile monoliths described in the instant specification (Page 1, L30-Page 2, L15).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/
08/15/08

/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794